

Biospheric Sciences Branch Highlights for July – August 2005

**** Terra selected for extended mission**

The EOS Terra mission was rated highly for its compelling science by the recent HQ Missions Operations and Data Analysis Program Senior Review Panel and selected for funding for the proposed extended mission. Terra is the flagship mission of EOS with five instruments producing science data products of the Earth's atmosphere, oceans, land and ice. The proposed extended mission is for a four year period commencing in December 2005 and will concentrate on developing synergies among the Terra instruments and other missions to support NASA's goal of understanding and protecting our home planet. The proposal effort was led by Terra Project Scientist Jon Ranson (614.4) with major contributions from Si-Chee Tsay (613.2), Bob Kozon (581) Paul Ondrus (428), David Herring (610.3), and the five Terra Instrument PIs: MODIS, Vince Salomonson (614.3); ASTER, Mike Abrams (JPL); MISR, Dave Diner (JPL); MOPITT, Jim Drummond (U. of Toronto); and CERES, Bruce Wielicki (LaRC).

**** AERONET releases new processing system for retrievals of aerosol optical depth and column integrated water vapor retrievals**

AERONET's ground-based measurement and analysis system provides near-real time column integrated aerosol optical and microphysical properties in partnership with host countries at over 250 locations worldwide. The database begun in 1993 provides validation for NASA and other satellite retrievals of aerosols, a basic understanding of aerosol properties for radiative forcing studies, validation of chemical transport models, assessment of aerosol climatology and other research opportunities for the aerosol climate change communities.

On July 1 AERONET released Version 2 of the aerosol optical depth and water vapor retrievals updating the entire database from algorithms encompassing the most recent knowledge in the field and using satellite and modeled data sets from TOMS 30-year climatology for ozone corrections, NCEP/NCAR 6 Hourly Reanalysis for air pressure (Rayleigh scattering) corrections, and SCIAMACHY climatology for NO₂ absorption corrections. It is planned to replace SCIAMACHY climatology with OMI climatology when it becomes available. The new AERONET algorithms are likely to be adopted as the world standard for processing sun photometer data.

More details of the processing algorithms are available from the AERONET website: <http://aeronet.gsfc.nasa.gov> as well as access to the database.

**** One-day EOS IDS team meeting hosted**

The Hydrological and Biospheric Sciences Lab (Ana Pinheiro, 614.3, Jeff Privette, 614.4) hosted a 1-day EOS IDS team meeting on July 7 at GSFC. Visiting were Dr. Kelly Caylor (Princeton), Dr. Todd Scanlon (UVA), Dr. Greg Okin (UVA) and Ms. Natalie Mladenov.

**** Fred Huemmrich invited to join Science Advisory Group of the Barrow Arctic Science Consortium**

Fred Huemmrich (Code 614.4) was invited to join the Science Advisory Group of the Barrow Arctic Science Consortium (BASC-SAG). BASC provides logistic support to scientists working in arctic Alaska. The arctic tundra MODLAND validation site is located near the BASC facilities. The SAG provides feedback to BASC management from the point of view of scientists using their facilities. Huemmrich attended the SAG meeting in Barrow, AK on June 24. This is a particularly exciting time for BASC as they are about to break ground on a new laboratory building dedicated to supporting climate change research.

**** Dr. Elissa Levine presented a lesson on Earth Science and soils to 12 blind middle school students and their teachers as part of the National Federation of the Blind (NFB) "Circle of Life" Summer Academy.**

This was the second year the Circle of Life academy has been offered and blind students from schools across the US participate in this academy for 1 week in the summer. This year, the students made daily measurements of max/min temperature of the soil and air, and precipitation according to LOBE protocols at the NFB headquarters in Baltimore. They also participated in numerous activities during the week, including a camp out on an organic farm, culminating with a visit to Goddard on Friday. The students toured Goddard facilities, had a luncheon with other blind scientists and engineers at Goddard, and took part in Dr. Levine's Earth science activities in the afternoon. These activities included a discussion of the importance of studying Earth Science, reviewing climate patterns across the country and the world, understanding the climate measurements they had made, and a hands-on experiences with soil structure and texture in the lab. The students appeared to enjoy these activities and were able to grasp the concepts and ask meaningful questions.

**** Dr. Elissa Levine selected as the Principal Investigator for funding in the 2006 Director's Discretionary Fund Program for a proposal entitled "A New Partnership for Effective Science Education".**

This project seeks to structure a new partnership between NASA Goddard and the Smithsonian Environmental Research Center (SERC), located in Edgewater, Maryland, in the development and trial implementation of interdisciplinary, experiential science education pedagogy at the middle and high school levels. The approach will include a combination of field data acquisition, satellite data, and modeling of the Chesapeake Bay watershed to create an engaging methodology for science delivery that matches national and state education standards. Dr. Levine will be working with Co-Investigators Mark Haddon, Education Director at SERC, and David Herring, Code 613.2